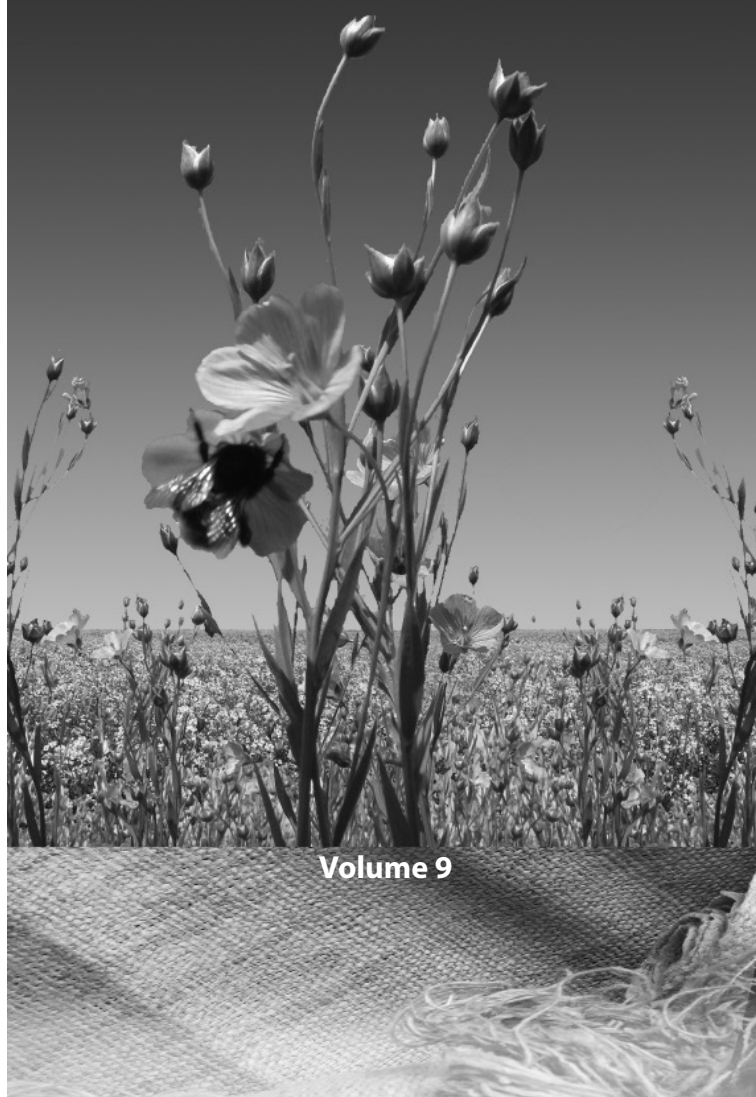


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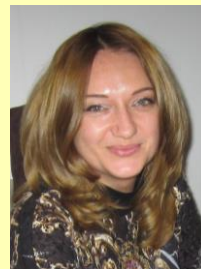
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**Dear Readers and SCORENA Network Members!**

***It is a great pleasure to announce the 9<sup>th</sup> volume of Scientific Bulletin of SCORENA!***

*The Editorial Board thanks to “Aurel Vlaicu” University of Arad, Romania for fully supporting this.*

This number starts with Professor’s Gennady Efremovich Zaikov article, a short preview of his future book about his life and more than 50 years of a brilliant scientific activity at the Institute of Chemical Physics of Russian Academy of Science in Moscow.

The volume continued with two articles, one about risk management in distribution system of agro industrial complex in Belarus and other about Romania’s environmental policy and commitment at European Union integration.

This issue concludes with information on activity of the FAO-SCORENA Inter-Regional Cooperative Research Network on Buffalo and of the International Buffalo Federation during 2013.

We also mention the ongoing project at the “**Technical and Natural Sciences Research-Development-Innovation**” Institute – “Aurel Vlaicu” University of Arad, Romania. The project is funded by the European Community and Romanian Government and will develop a new research

center called “**Research Center in Technical and Natural Sciences**”. The project objectives are focused on development of R&D infrastructure, modernization of the existing laboratories, acquisition of new instruments, equipment and the latest technology for approaching more priority domains like Innovative Materials, Products and Processes, Health, Environment, Agriculture, Food Safety and Security which play an important role in science, research and technology transfer to agriculture and industry.

In the opinion of the Editors, “Scientific Bulletin of Escorena” had a good influence on growing role of all natural fibers in many branches of economy. As well starting with number 8, the journal is open for broad area of research including sustainable agriculture, agronomy and climate changing.

**The Bulletin has free open access and no fees for publication. We encourage and kindly invite all researchers to publish in Scientific Bulletin of ESCORENA!**

## My way - Curriculum Vitae during 80 years

**G.E. Zaikov**

*N.M. Emanuel Institute of Biochemical Physics, Russian Academy of Sciences, 4 Kosygin str.,  
Moscow 119334, Russia [chembio@sky.chph.ras.ru](mailto:chembio@sky.chph.ras.ru)*

In the first part of his life any scientist is working for his reputation, in the second part his reputation is working for him. Don't be afraid to do what you can't do. Remember, Noah's Ark was built by amateurs and the Titanic was built by professionals. The only person you have to compare yourself with is you were in the past. The only person you have to be better than are you who you are now. In a character of any person there are three golden qualities: patience, sense of measure, and the ability to remain silent. Sometimes they help in life more than intellect, talent and beauty. Everyone would like to live longer, but none would like to be old. The more we go on living the older we become, that is the price for a long life. Whose fault is it that we pay so much? We all know the words one Russian song "Only once in your life you can be 18 and it is youth". As well as 80 (that is far from being young) also can be once. One folk's proverb says "The only one, who does not do anything, does not make a single mistake". I have been working for all my life and I am still working actively and it means I made mistakes. So, I decided to remember the years I lived through and estimate my successes and failures. Well, it really was Old Man Winter in 2013 and 2014. It was very cold outside and nice and warm inside. I was sitting in my chair in front of a fireplace and thinking about life. Time is flying. Just recently, on January 7, 2014, it was my 79<sup>th</sup> birthday. That day Prof. Vladimir A. Babkin from Volgograd-city (Russia) called me and reminded me that the numeric value 79 is the number of the element GOLD (AURUM) in the D.I. Mendeleev Periodic Table of Elements. By the way, the number 80 is the number of element MERCURY (HYDRARGIUM) in the same table. Well, Mercury is a very valuable metal, because Mercury is movement. A well-known Russian poetess Larisa Rubalskaya wrote about that age: "Only one thing consoles me. I am worse than I was, but I am better than I will be". Hardly anyone in gerontology will doubt this thought. So I decided to prepare this volume about my life, my activity in science and my work for many years at the Institute of Chemical

Physics of Academy of Sciences of the USSR (Institute of Biochemical Physic of Russian Academy of Sciences), Moscow State University of Fine Chemical Technology, Kazan National Research Technological University and at Volzhsk Polytechnic Institute. In recent years I have been working together with more than 150 scientists from Russia and colleagues from the USA, the UK, Portugal, Spain, Italy, France, Germany, Poland, Slovakia, the Czech Republic, Romania, Bulgaria, Turkey, Iran, Thailand, Ukraine, Belarus, Uzbekistan and Kirgizia. I asked some of them to write scientific chapters in this volume. I was born on January 7, 1935 in Omsk-city on the banks of the river Irtysh (Siberia). My father Zaikov Efrem Ksenofontovich (1902-1987) was a land-surveyor and, before his retirement, was a teacher of mathematics in high school in Omsk. My mother Zaikova (maiden name Mironova) Matrena Trofimovna (1907-1972) taught general and inorganic chemistry at Omsk Medical Institute. My elder sister Zinaida (1927-2008) was a teacher of physics in high school in Omsk. I had two more sisters Inna and Clara, but they passed away very young. I studied at School No. 4 (elementary school) and No. 19 (middle and high school) and I would like to say that there were many very good and qualified teachers. I still remember many of them. Vera Tarasova (chemistry), Evgeny Klevakin (algebra), Pavel Goncharik (physics), Roza Hatskilevich (geometry and trigonometry), Ferdinand Kremer (geography), Vera Rubinshtein (French), Wilhelm Scpet (violin) and Jadwiga Szczepanovska (pianoforte). When I finished school I had two options: to become a professional violinist (at this time I finished music school for violin and pianoforte) or go to university. My violin teacher Wilhelm Scpet explained to my parents that I could not become a good violinist because my fingers were short (not Niccolo Paganini fingers). In June of 1952 I finished high school and in July of the same year I passed the competitive examinations for the Chemical Faculty Department of the M.V. Lomonosov Moscow State University. The competition was very high (10 applicants for 1 placement). I studied at the University very well. We had excellent professors at the university: Lev Abramovich Tumarkin (mathematics), Victor Ivanovich Spitsyn (inorganic chemistry), Alexander Nikolaevich Nesmeyanov - President of Academy of Sciences of the USSR (organic chemistry), Nikolai Konstantinovich Kochetkov (chemistry of natural compounds), Valentin Alekseevich Kargin (chemistry of high-molecular compounds), Piotr Alexandrovich Rebinder (colloid chemistry) and many others. After my third year at the university I was transferred to a special group. The main task of this group was to separate isotopes for nuclear industry. In this group we separated lithium 6 from lithium 7. We tried many ways and found a very good one. This work lasted for 2.5 years. On the basis of this data I defended my diploma (December 25, 1957). I never worked in this field again. On

February 13, 1957 I started working at the Institute of Chemical Physics Academy of Sciences of the USSR. My friends from the university Lev Andronov and Lamara Privalova (maiden name Kokaya) helped me to find this position because they had already worked at this Institute half a year. I had a chance to begin my career in the laboratory of Prof. Nikolai Markovich Emanuel, a well-known scientist in the field of chemical kinetics. However before meeting Prof. Emanuel I had an interview with his deputies Dr. Erna A. Blumberg and Dr. Zinaida K. Maizus. They gave a positive conclusion and I met Prof. Emanuel. At our first meeting Emanuel asked me what I could do. I said I know chemical kinetics, was able to separate isotopes and I also played the saxophone (I played the saxophone in dance-club). Emanuel joked: "This is very important because none of my co-workers can play the saxophone". And he invited me as a researcher to his laboratory. He was very fond of American jazz and asked me to organize a jazz-band. I did that and every weekend we had dances in our department. Many scientists came over to dance to jazz, that is how I got to know many of them. The Director of the Institute of Chemical Physics was the winner of the Nobel Prize - academic Nikolai N. Semenov. He received the Nobel Prize for research in the field of chain branch reactions in 1956 together with the British scientist Sir Cyril Hinshelwood. On January 4, 1964 I defended my PhD thesis "The comparison of processes of butane oxidation in liquid and gas phases". As a whole, the process of butane oxidation was developed by Emanuel and his co-workers earlier. On the base of these results (including mine), there was constructed a workshop to produce butane oxidation to acetic acid and metylethylketone, in the capacity of 10 thousand tons of acetic acid, at a Moscow oil-processing plant. N. M. Emanuel's co-workers M. G. Bulygin, E. B. Chizhov, and L.I. Korablev worked very hard to build this shop. My Doctor of Science thesis "Role of Media in the Radical Chain Reactions of Oxidation" was defended on April 16, 1968. And on May 20, 1968 I went to Canada (National Research Council of Canada, Ottawa) to work with Prof. Keith Usherwood Ingold for my second training. I worked there for about half a year. I am very grateful to Prof. Keith Ingold (he is still working in the field of biochemical kinetics), not only as he is a great scientist in the field of chemical kinetics, but also because he is a great teacher of life in the West. Now we are friends. After that I worked in the USA, the UK, Japan, and Germany for some time. (In reference to Canada being the 2<sup>nd</sup> training) my first training was in Poland in 1965 at the Institute of Physical Chemistry of Polish Academy of Sciences, Warsaw (Prof. Wojtech Zelenkevich). I learned Polish before my visit to Poland. But when I came to Warsaw I realized that the majority of Polish scientists spoke Russian much better than I spoke Polish. So, it was easy to communicate with them. This training was

very fruitful for me as well. In 1970 I became a Full Professor of Chemistry. My first book with the co-authors N. M. Emanuel and Z. K. Maizus was published in 1973 on the basis of the same research as my Doctor of Science thesis, at Nauka (Science) Publishers (Moscow). Then this book was translated into English and published in Pergamon Press Publishers (Oxford, the UK). At present I (with many co-authors) have already published more than 400 monographs and volumes (about 300 in English and about 100 in Russian) and about 4000 original articles in Russian and in English.. All of them are devoted to Chemical Physics, Chemical Kinetics, Biochemical Kinetics, Biochemical Physics, Polymer Material Science, Composites and Nanocomposites. In 1966 I started doing research in the field of Degradation and Stabilization of Polymers as a part of a general problem in the realm of Polymer Material Science. I am still working in this field today. And a big researching group is working together with me in this area up to the present. I met many great scientists and nice people in my life. Among them: Herman Mark, Charles Overbergers, Eli M. Pearce, Menachem Lewin, Gerald Kirshenbaum from Brooklyn Polytechnic University (NYC, USA), Norman Grassie (University of Glasgow, Scotland, UK), Georges Geuskens from Universite de Libr de Brussel (Belgium), Rainer Wolf (Sandoz Co. Hunige, France), Victor de Manuel de Matos Lobo (Coimbra University, Coimbra, Portugal), Wolfgang Fritsche (German Chemical Society, Frankfurt am Main, Germany), Charles Wright and Antonio Ballada (Himont Company, Wilmington, DE, USA), Paul Edwin Stott (Crompton Co, Middlebury, CT, USA), William Herbert Starnes, Jr. (College of William and Mary, Williamsburg, VA, USA), Alberto D'Amore (The Second University of Naples, Italy), Alfonso Jimenez (University of Alicante, Spain), Ryszard Kozlovski (ESCORENA, UN, Poland), Devrim Balkose (Polytechnik University, Izmir, Turkey), Walter Focke (University of Pretoria, South Africa), Jan Rejer Theodor Frank Groesbeek (VSP International Publisher, Zeist, The Netherlands), Frank Columbus (Nova Science Publishers, New York, USA) and many others. Of course, I would like to mention more names but the size of this volume doesn't allow me to do that. My family helps me both in life and in work: my wife Marina, my son Vadim, my daughter-in law Olga, my grandchildren Alexandra and Denis. Life has changed a lot for the past 20-25 years. Vadim with his family lives in Ohio in the USA, my granddaughter Alexandra is a master's level graduate student in Chicago, Illinois, my grandson Denis is a high school student in Perry, Ohio. My wife Marina Artsis and I are still working at the Institute of Biochemical Physics (part of the Institute of Chemical Physics) Russian Academy of Science in Moscow. I met Marina at the Institute and we have been working together all our life. And Marina always has a "to-do list" to keep me busy. I have already been working at this Institute

for 57 years. I have defined the coming of old age as “when one spends on healthcare and medicine the same part of his budget as on food, clothes and pleasure” - then it means that old age has come. Of course, modern medicine gives us a chance to live longer and have a good life in old age. In any case, in answering Hamlet's question (a hero of William Shakespeare) “to be or not to be?” - We definitely say TO BE.



## **Risk management in distribution system of agro industrial complex**

**PhD. Natallia Kireyenka, Lyudmila Verokha**

*Institute of System Research in Agroindustrial Complex of NAS of Belarus*

*[uramart@mail.by](mailto:uramart@mail.by), [weroha-lyuda@yandex.ru](mailto:weroha-lyuda@yandex.ru)*

### **Introduction**

Ensuring effective sale of agricultural production is the priority direction of an agrarian policy and a strategic problem of financial stability of producers. The system of distribution and advance of foodstuff acts as the major element guaranteeing production of competitive food and directed on ensuring food security of Belarus. The choice of strategy of the organization of sale, its development and realization focus activity of subjects of managing on average and long-term prospect that predetermines need of development and deployment of the mechanism of risk management in internal and environment.

First, the system of merchandising of agrarian and industrial complex (AIC) constantly is under the influence of various micro and the macro processes connected with functioning of the Customs union, Common economic space formation, expansion of sales markets, and improvement of price, marketing and other mechanisms. Secondly, instability of external and internal conditions conducts to emergence of risks, threats and the dangers influencing efficiency of trade operations. Thirdly, there is an ambiguity and uncertainty of a choice of optimum methods of control over risks. It is connected with that there is no uniform approach to understanding of essence of this category caused by complexity and a multidimensionality of the phenomenon, its application for de assignment of different economic situations. In this regard, the importance gets the analysis of methodological and practical approaches of the risk management accepted for the solution of marketing tasks in the agrarian sphere of Belarus.

### **The main part**

Studying of references testifies that economists offer various approaches to risk essence justification, in each of which authors by results of the analysis of theoretic-methodological bases of this category and own approach developed in this regard to a

considered problem open its essence and practical mission. In our opinion, it is expedient to consider this category: statically – the phenomenon caused by adverse changes of internal and environment of the enterprise and (or) their combinations: dynamically – process of deployment of these phenomena in space and time.

Risk management represents purposeful search and the organization of work on decrease in its influence. Simultaneously it is an art of receiving and increase in the income (arrived) in an uncertain economic situation and includes a formulation of the purpose and tasks, collection of information about risks, measurement of their main characteristics, scales and ways of manifestation, development of alternatives of the risk decision, a choice and realization of most optimum of them (Figure 1).

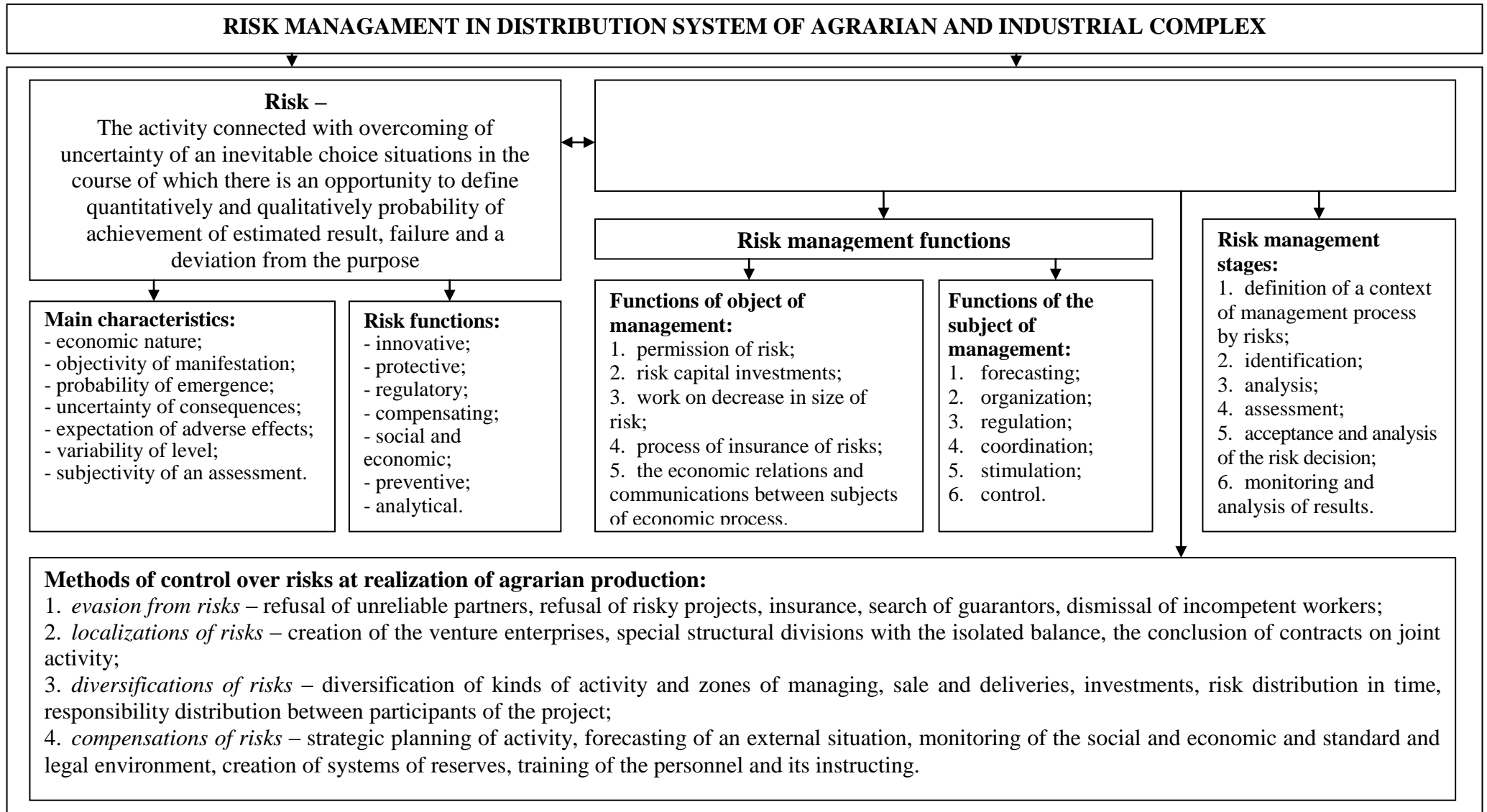
Researches show that risks in functioning of distribution system of agrarian and industrial complex are caused by external and internal conditions, features of the grocery markets, since agricultural production and finishing delivery of food to the end user. Thus the risks arising in agrarian sector, conduct to their emergence and strengthening at the enterprises of the food industry.

The main grocery markets for conditions of Belarus are the markets of grain, potatoes, sugar, vegetables, fruit and berries, vegetable oil, flax, meat and meat products, milk and milk products, eggs, fish and fish products. In a population food allowance, these products for 90% provide need for energy and for 85% – in the main feedstuffs. Set of risks in functioning of distribution system of each of groups includes as specific, caused by features of a product, and the general, characteristic for all or nearly all from them [5]. Basis of a sales market of agricultural raw materials and the food, except various types of production, a large number of producers makes. The modern distribution system of agricultural raw materials and the food of Belarus have multichannel character and a grocery orientation. In recent years, there were changes in structure of realization of production on merchandising channels that caused diversification of methods and ways of distribution.

*The market of grain* represents set of the exchange relations regulating economic communications and carrying out purchase and sale of grain and products of its processing. Producers of grain have commercial communications on supply of grain with customers on formation of the state funds of various levels, the procuring organizations, the wholesale resellers, the processing enterprises and can independently enter a foreign market. The most powerful sales channel of grain for the agricultural organizations is sale to the state. In 2005, grain was on sale only in three directions: for needs to the state (43.2 %), to employees of the agricultural organizations (6.9 %) and in the market (49.9 %). In recent years, the realization

structure significantly changed. At preservation of high specific weight of realization of grain on account of the state order (about 50 %) the role and a share of other channels of realization considerably increased: exchange trade, wholesale food markets, etc.

In 2012 in farms of all categories 9227 thousand tons of grain were collected, or nearly 587 thousand tons are more in comparison with 2011. It became result of harmonious work of the enterprises of public sector and allowed to provide completely animal husbandry with fodder grain (6.3 million tons), and also to implement the plan for the state order. Cases of non-compliance with technology, the careless relation from heads of the agricultural organizations were single.



**Figure 1.** Risk management mechanism in distribution system of AIC

**Note.** Drawing is made by authors on sources [1, 2, 3, 4].

However, according to the expected data of settlement balance of grain for 2012 its shortage made nearly 382 thousand tons. Due to the heavy long winter that has weakened crops of winter of grain and displaced terms of sowing of summer of grain is necessary to provide implementation of plans on collecting grain in 2013 at a rate of 10.4 million tons. Belarus has favorable soil climatic conditions for cultivation of potatoes and is one of leaders in its world production. The modern level of the branch development is characterized by prevalence in production of individual sector and country (farmer) farms gross gathering potatoes in which reach 90%. Security with this production exceeds requirements of domestic market (Table 1).

**Table 1.** Balance of the food of Belarus for 2010-2012, tons

Indicators	Year			2012 by 2011. %
	2010	2011	2012	
<b>Potatoes and products from potatoes</b>				
Demand - all	7961	7832	7219	92.2
including:				
domestic market	7822	7735	7022	90.8
export	139	97	197	203.1
The offer - all	7961	7832	6968.6	89.0
including:				
production	7831	7721	6911	89.5
import	130	111	57.6	51.9
<b>Sugar (white)</b>				
Demand - all	888.4	843.1	848.6	100.7
including:				
domestic market	396.8	449.9	397.4	88.3
export	491.6	393.2	451.2	114.7
The offer - all	816.1	985.7	862.8	87.5
including:				
production	816.0	985.5	862.6	87.5
import	0.1	0.2	0.2	-
<b>Vegetables</b>				
Demand - all	2552	2183	2074	95.0
including:				
domestic market	2476	2087	1951	93.5
export	76	96	123	128.1
The offer - all	2552	2183	1773	81.2
including:				
production	2335	1979	1581	80.0
import	217	204	192	94.1
<b>Fruits and berries</b>				
Demand - all	1128	654	1031	157.6
including:				
domestic market	1103	596	924	155.0
export	25	58	107	184.5
The offer - all	1128	654	1105	169.0

including: production	799	304	630	207.2
import	329	350	475	135.7
Vegetable oil				
Demand - all	284	268	378	141.0
including: domestic market	251	228	213	93.4
export	33	40	165	410.0
The offer - all	284	268	304	113.4
including: production	161	160	189	118.1
import	123	108	115	106.5
Meat and products from meat				
Demand - all	1059	1137	1681	147.8
including: domestic market	814	855	851	99.5
export	245	282	830	294.3
The offer - all	1059	1137	1250	109.9
including: production	971	1020	1093	107.2
import	88	117	157	134.2
Milk and dairy products				
Demand - all	6674	6538	6081	93.0
including: domestic market	3366	3233	2659	82.2
export	3308	3305	3422	103.5
The offer - all	6674	6538	6818	104.3
including: production	6625	6505	6767	104.0
import	49	33	51	154.5
Eggs and egg products				
Demand - all	3551	3770	3858	102.3
including: domestic market	3000	3155	3180	100.8
export	551	615	678	110.2
The offer - all	3551	3770	3871	102.6
including: production	3536	3752	3846	102.5
import	15	18	25	138.9
Fish and fish products				
Demand - all	163	151	181.4	120.1
including: domestic market	130	111	137	123.4
export	33	40	44.4	111.0
The offer - all	163	151	167.6	110.9
including: production	23	26	25.6	98.5
import	140	125	142	113.6

**Note.** Table compiled by authors based on source [6].

However, potatoes reduction in production is noted: for the first time over the last 10 years, gross collecting tubers made less than 7 million tons (6911 thousand tons in farms of all categories). Production consumption per capita in 2012 was below medical norm (162 kg against 170 kg).

Lack of appropriate system of domestic seed farming and system of storage of potatoes in the agricultural organizations leads to that only insignificant part of annually reaped crop is suitable for the food purposes. Its main part goes on industrial processing and forage to cattle.

Due to insufficient extent of development of domestic system of beet seed farming, the agricultural organizations get seeds at the European suppliers, which quality is not always the high. Practically terms of fertilizers application are everywhere broken – for introduction in their fall many agricultural enterprises have no necessary money, and carrying out such works in the spring possibly only in the top layer of earth. Due to the insufficient general capacity of beet sugar plants (2012 – more than 30 thousand tons) producers begin cleaning of not ripened root crops with insufficient sugar content, and terms of processing of beet are tightened (at necessary 110 days). As a result at gross gathering beet in 5 million tons of root crops in optimum terms only 3.5 million tons are processed.

Belarus lags behind in a sugar level of production many countries of Europe. So, in Poland on 1 hectare of crops receive 8-10 t of sugar, France – 12-14, Belarus – 6 t. World overproduction of sugar makes 3-4 million tons. Certain CIS countries develop the beet breeding. Ukraine has protected from the Belarusian sugar with high duties. In such operating conditions, it is necessary to work carefully with constant sales markets abroad. In 2013 restoration of export of vegetables in Belarus happens more slowly in comparison with potatoes export. As of 2012, internal needs of the country for vegetables, except imported garlic, are completely satisfied.

Realization of vegetables in domestic market is characterized by glut by fresh production of own production during the summer-autumn period and its import to a winter and spring season. The last is caused by damage and deterioration put on production storage in connection with violation of technology of storage. Besides, existence of excess stocks of raw materials conducts to growth of expenses respectively, increase of the realization price.

Risk of overproduction of vegetables which periodically arises in some regions of the country (in 2012 it captured Stolinsky, Mostovsky and other areas), it can be solved by their export to the partner countries of the Customs union – Russia and Kazakhstan and, therefore, to become a source of additional currency revenue.

One of the greatest threats for functioning of the domestic market of fruits and berries regarding delivery of fresh production a condition of fruit and berry plantings, especially in the agricultural organizations. By results of the carried-out inventory of gardens in them, 59% of fruit-trees are referred on quality to low and very low site class. Gardens on age structure passed the period of full fructification (87% of apple-trees and 67% of pears have age more than 20 years) in the majority of the organizations.

Delay of works on of fruit plantings updating, removal of old trees and bushes, a laying of new gardens will lead to reduction of volumes of gathering domestic fruit and berries, deterioration of a reaped crop, and also a supply and demand imbalance in domestic market, to interruptions in deliveries and production sale during the winter and spring period, to recession in processing of fruit and berry raw materials. As a result, the need for fresh fruit import will increase. That will negatively affect functioning of the grocery market; security of the population in products of this group at the expense of internal production will worsen.

Besides, for uninterrupted supply of the market by fresh fruits it is necessary to consider instability of crops by years. It is caused by a genetic favor of plantings to fructification and depends on weather-climatic conditions within a year. In this regard, development of system of a laying of fruits, first of all apples, on long storage is actual.

Researches show that the vegetable oil market in Belarus is formed at the expense of production of oil of the import seeds that have been grown up in the republic, import of oil in the natural form for processing or consumption, as a part of foodstuff, oil seeds for the purpose of their processing abroad and the subsequent import of oil. These directions do not exclude each other, and develop at the same time with various extent of influence on the result. Belarus cannot refuse completely import sunflower, soy, peanut and some other types of vegetable oil. Now our country has opportunities for the account of colza oil seeds considerably to satisfy internal needs for vegetable oil. Eighty percent of all vegetable oil consumed by the population of the country is sunflower oil (generally imported).

Tendencies of cultivation and processing of flax development in recent years show that the main reasons for unprofitability of this branch are insufficient security of production with the main and reverse resources, non-compliance with technological standards. Therefore, throughout a row of years productivity of flax did not exceed 7.8 c/hectare on a flax fiber and 3.4 c/hectare on seeds. The sales proceeds, at substantial increase of purchase prices on flax fiber and flax seeds, cover only costs of production.

In Belarus the market of meat and meat sufficiently balanced supply and demand. However, due to the periodic occurrence in the territory of the importing meat there is a risk

entering the Republic of contaminated products and defeat diseases of domestic animals. For example, in the Russian Federation currently recorded 37 active outbreaks of African swine fever (ASF) in 10 regions of the country. There is a possibility of animal and from a source that broke out in the country. So, in April 2013 in the agricultural enterprise "East" there was a mass mortality for diagnosed pigs with reproductive and respiratory syndrome.

Image of the Belarusian producers has a great impact on export growth of milk products abroad, among other things. Ban the import countries on import of our production and illumination of the similar conflicts in mass media cause a reputation loss to representatives of the Belarusian dairy branch. The reasons of the similar conflicts have most often political or legal character. In this connection, it is necessary to react quickly to possibility of their emergence in the long term.

Four milk-processing plants of Belarus have permission to sale a part of the production in the European market. However, expectation of overproduction of milk in Europe in 2013 can negatively affect volumes of export of the Belarusian dairy production and plans on expansion of geography of foreign trade.

At the end of 2012 restoration of the world prices on dairy began. Now production from New Zealand and EU poses smaller threat for the Belarusian positions on the main sales market. Nevertheless, during 2013, influence of the WTO will amplify and the competition will become aggravated. Due to the Russia's accession to the World Trade Organization turning of cheese branch in the country that is good possibility of increase of export for Belarusian cheese producers is expected.

Considerable problems of export of milk and dairy production are connected with lack of full-fledged system of laboratory control. The technical regulations "Milk and dairy production aren't entered Safety". Because of controversial questions, coordination at the level of EEK of technical regulations of the Customs union is tightened.

In Republic of Belarus, production of eggs is focused on export. The European market for the Belarusian producers so far is closed therefore as the main importers of this type of production the countries of the Customs union – Russia and Kazakhstan that overproduce eggs act. Besides Russia the accelerated rates develops egg poultry farming.

Production of eggs for the Belarusian poultry farms is generally unprofitable. That is connected, on the one hand, by price regulation and establishment of limit selling prices by the state, with another – increase of cost of raw materials and forages. Selling prices of egg chicken did not change from December 2011 to February 2013. For this period of the price of separate types of raw materials and forages grew several times. Therefore, in 2012 in relation

to 2011 the cost of grain grew by 1.8-2.2 times, soy meal – 1.9, sunflower meal – 2.8 times. For 2012 of a quotation of development and storage of compound feeds increased for 40%, the cost of fuel increased by 16%, credit resources reached 45-55% per annum. During the summer period the prices of exported eggs considerably fall that increases losses of the Belarusian producers.

In view of lack of an outlet to the sea Belarus is compelled to import sea fish. However, gradual growth in a share of consumption of fish and fish products of domestic pond fish from 7-11% to 16% is observed.

The board of the European economic commission lifted on April 25, 2013 limits on import to Belarus fishes, seafood and products of their processing. Corresponding changes are made to the Uniform inventory to which a ban or restrictions on import/export by member countries of the Customs union within the Euroasian economic community in trade with the third countries is applied.

Difficulties in increase of a saturation of the market by domestic fish is that insufficient number of outlets in Belarus have the special equipment that is reflection of disinterest of the organizations in work with this product.

The second problem – a ratio of the prices of a domestic carp, a silver carp and other fish, vietnamese a tilapia and a pangasius, and also sea hake and a pollock. Lack of measures for reduction of price disparity on domestic and imported fish only will strengthen risk of instability of the market both for the Belarusian producers, and for consumers concerning level of annual consumption of these products. Also for increase in consumption, it is necessary to expand with Belarusians of pond fish of domestic producers the range not only in fresh, but also in a smoked, dried or dried look.

### **Conclusions**

As a whole for distribution system of agricultural production of Belarus conservatism in a choice of channels of merchandising of agricultural raw materials is characteristic, production is realized according to the schemes, operating many decades. It is in many respects defined by specifics of agricultural production and has the certain risks influencing competitiveness of products and a financial position of subjects of managing. Thus, lack of the mechanism of risk management in distribution system of an agrarian complex conducts to emergence of new dangers and threats, and additional expenses on a covering of consequences of risk situations, stimulates growth of irrational expenses and reduces profitability of producers.

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## **Romania's commitment at European Union integration**

**Assoc. Prof. Dr. Petru Tărchilă**

*Faculty of Humanistic and Social Sciences, "Aurel Vlaicu" University of Arad,*

### **Abstract**

Environmental protection is one of the horizontal policies of the European Union these days. Its main aim is to design and apply all policies of the Community and its member states. The integrated approach should be linked to the general integration strategies of the last decade of the previous century which were lowly adjusted to the pattern of sustainable development.

The Maastricht Treaty raises environmental policy to the “rank” of Community policy and the Amsterdam Treaty includes the principle of sustainable development to the main Community objectives. It also regulates the application of the Environmental Integration Principle to sectorial policies. The European Union has elaborated a complex system of horizontal Community Laws by designing six environment action programs. They occur in the following fields: air quality, waste management, water quality, landscape protection, industrial pollution and risk management, dangerous chemical substances and genetically modified organisms, noise, civil protection, nuclear safety and radioprotection. EU has changed the sectorial approach into an integrated one, has developed principles and action and has taken important steps in international cooperation on environment safety.

Currently, the European Union runs the stages of the Sixth Action Programme “Environment 2010-2015: Our future, our choice” which focuses on four main areas of action: climate changes, environment and health, nature and bio-diversity and management of natural resources.

When adhering to the European Union, according to Negotiation Chapter 22, Romania assumed to fulfill the European regulations and to allocate financial amounts

in order to apply coherent measures in the field of Environmental protection. As full member of the European Union, Romania defined its own consistent policies in order to follow the strategic direction and priorities of the European Commission. While the Community Acquis was already adopted, further actions and environmental activities aim to reach the targets for each negotiated transition period.

**Keywords:** Negotiating chapters between Romania and the European Commission, main environmental objectives and targets, Community Acquis, Transition

### **Introduction to Romania's environmental policy**

Romania's environmental policy began in the 90<sup>s</sup> after the foundation of the Ministry of Environment. In 1992 Romania has adapted The National Strategy for Environmental Protection, updated in 1996 and 2002.

According to the strategy, the main objectives related to environment in Romania were:

1. preservation and improvement of people's health conditions;
2. sustainable development;
3. pollution prevention;
4. preservation of bio-diversity;
5. preservation of cultural and historical heritage;
6. application of the principle "the polluter should pay";
7. stimulation of environmental recovery (by allotting subventions, credits with low interest, etc).

The strategy has been supplemented in 1999 by the "*Environmental Status Report of Romania*" and "*The National Waste Management Strategy*" (2002). The most important steps in the legislation, favored by the national strategy and by the EU membership program, were registered in the legislation related to the impact assessment, dangerous waste, waste landfills, packaging waste and waste transportation,

legislation on wastewater, drinking water, pollution caused by hazardous waste, identification of spaces that require special protection, industrial pollution control, measures for the safety of nuclear fields [4].

Romania, as a member of the European Union, has to implement the community acquis on environment. The application of variable geometry strategy in the European model of integration facilitates the gradual enactment and application of community legislation by using the transition period and the transitional arrangements. These extension tools have been a support for our country, if we consider the high exigency of environmental protection in EU as compared to Romania's possibilities of legislation enforcement and the financial resources required by the insertion of the ecological responsibility principle among the citizens.

### **Romania's commitment at European Union integration**

The Negotiation Chapter "**Environment**" (chapter 22) was opened in May 2002 and closed in 2004. After the negotiation Romania obtained the following transitional periods [2]:

- 3 transitional periods of 1, 2 and 3 years for compliance with the Directive on emission of volatile organic compounds from the storage of petrol and its distribution from the petrol distribution stations;
- 3 transitional periods of 3, 4 and 5 years to achieve the goals on recovery and recycling of plastic, glass and wood in compliance with the Packaging and Packaging Waste Directive;
- 2 transitions periods of 1 and 2 years for compliance with the Waste Incineration Directive;
- 3 transition periods of 3, 7 and 9 years for the compliance of 130 storages with the Waste Storage Directive;
- 2 transition periods of 2 years to reach the collecting and recycling targets as regulated by the Waste Electrical and Electronic Equipment Directive;

- 2 transition periods of 5 and 9 years for the full application of Regulations on Waste Shipment and *waiver from the application of article 7(4) on the period of temporary waiver for the destination installation;*
- 2 transition periods of 9 and 12 years for the application of regulations on treatment of urban waste water;
- 2 transition periods of 4 and 9 years for the compliance with all 9 quality parameters regulated by the Drinking Water Directive;
- 1 transition period of 3 years for 51 industrial plants for 8 hazardous waste;
- 1 transition period of 8 and 2 years for 195 installations that have to comply with the integrated pollution and prevention control Directive;
- 3 transition periods of 6 years for reduction of emissions in 34 large combustion plants, for the compliance with NOX requirements within 69 installations and powder limit values for 26 installations. Romania has also 1 year additional time to comply with the NOX requirement within 6 installations.

The Commission estimates costs of approximately 22 billion Euros [2] required for the compliance with European legislation on environment issues. But the implementation of the European acquis on environmental issues will prevent us from making the same errors as “older” Member States have made in the process of their economic development and thus bring about a faster improvement of environment and life conditions. Not at least, nature protection favors economic growth, creates jobs, develops labor markets with essential role in social welfare [3].

Romania has managed to corroborate domestic legislation with the community acquis on environment, but the Commission`s reports have drawn attention constantly on the administrative limitations of PEM application as well as on the reduced possibilities of financing it, due to lack of proper financial tools. The European Community supported Romania through a series of financial pre-accession instruments like Phare and ISPA, participation in LIFE programs and Community Initiatives as well as financial support provided by European Bank of Investment [1].

### **Romania`s strategic action plan on the compliance of domestic legislation and environment actions with the environmental policy of the European Union**

The priority of Environmental Policy application is the enactment of sectorial strategies that would integrate environmental components (according to the objectives of sustainable development) and improve the administrative structures of implementation. The Government considers that the community acquis has been fully enacted up to the moment of accession (January, 1<sup>st</sup>, 2007), and the implementation plans have been put into practice. As far as strategic actions are concerned, the stress in Romania`s Environmental Policy is laid on a series of priority axes that would strengthen the preventive component [5]:

- a. The development of integrated monitoring of the environment;
- b. Eco-production and sustainable consumption;
- c. Decentralization of institutional system and the application of responsibility principle on all levels and in all fields;
- d. The development of market targeted tools;
- e. International cooperation on continuous environmental protection.

We can notice that priority axes in Romania`s Environmental Policy are linked to European strategic directions on environment.

### **Conclusions**

Environmental protection is one of the horizontal policies of the European Union these days. Its main aim is to design and apply all policies of the Community and its member states. The integrated approach should be linked to the general integration strategies of the last decade of the previous century which were lowly adjusted to the pattern of sustainable development.

The Maastricht Treaty raises environmental policy to the “rank” of Community policy and the Amsterdam Treaty includes the principle of sustainable development to the main Community objectives. It also regulates the application of the Environmental Integration Principle to sectorial policies. The European Union has elaborated a

complex system of horizontal Community Laws by designing six environment action programs. They occur in the following fields: air quality, waste management, water quality, landscape protection, industrial pollution and risk management, dangerous chemical substances and genetically modified organisms, noise, civil protection, nuclear safety and radioprotection. EU has changed the sectorial approach into an integrated one, has developed principles and action and has taken important steps in international cooperation on environment safety.

Currently, the European Union runs the stages of the Sixth Action Program “Environment 2010-2015: Our future, our choice” which focuses on four main areas of action: climate changes, environment and health, nature and bio-diversity and management of natural resources.

In the over 30 years of community actions on environmental protection the Commission states that the most important results obtained are: reduction of industrial waste, limitation or banning of certain hazardous substances with high environmental and health risks, reduction of acid in waters, improvement of waste management, and improvement of water, air and soil quality. The next few years will be dedicated to those strategies and instruments that would promote a better correlation between the environment objectives and those of a free market (especially by changing production and consumption behaviors).

A more effective and coherent integration of environment in sectorial policies will be also a goal in the next years. Moreover, one of the great challenges will be the compliance of the new Member States with the Environmental Policy of the European Union. As full member of the European Union, Romania designed and implements a set of integrated action in order to comply with EU regulations according to the agreed schedule.

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## **Activity of the FAO-SCORENA Inter-Regional Cooperative research Network on Buffalo and of the International Buffalo Federation during 2013**

**Prof. Antonio Borghese**

*Coordinator of FAO/SCORENA Interregional Cooperative Research Network of Buffalo,*

*Director Animal Production Research Institute*

*General Secretary International Buffalo Federation*

*Editor Buffalo Newsletter, Phone: +39 06 9061494, Mobile: +39 338 3172740,*

*Fax: +39 06 9061541, E-mail: [antonio.borghese@scorena.net](mailto:antonio.borghese@scorena.net)*

1. The new book “BUFFALO LIVESTOCK AND PRODUCTS” was published in 2013. The book is edited by Prof. Antonio Borghese and by the C.R.A., Council for Research in Agriculture, financed by the Ministry of Agriculture, Food and Forestry Policies. The book, in 511 pages and 270 colored figures, is the most complete work in the world about buffalo species: buffalo population, breeds and products are presented for each country in the world; other chapters regarding nutrition and feeding, lactation curve and milk flow, milk quality and products, carcass, meat quality and products, welfare indicators and management, pathologies, cytogenetics, molecular genetics, reproductive technologies, artificial insemination, reproductive pathology, breeding and selection, by the best experts from C.R.A., C.N.R., and from Universities of Italy and Brazil.
2. Publication of a new book in IVIS (International Veterinary Information Service): Bubaline Theriogenology, edited by G.N. Purohit and Antonio Borghese. Different chapters have been published on line and many other are going to be published.
3. Publication of the number 27 (December 2012) of the Buffalo Newsletter, the Bulletin of the FAO-SCORENA Inter-Regional Cooperative research Network on Buffalo and of the International Buffalo Federation. The newsletter is published too on the FAO website: [www.agrowebcee.net](http://www.agrowebcee.net).

4. Organization of the 10<sup>th</sup> World Buffalo Congress and the 7<sup>th</sup> Asian Buffalo Congress, May 6-8, 2013, Hilton Phuket Arcadia Resort, Phuket, Thailand. On May 6, after the opening ceremony with the greetings and welcome by the Thailand Authorities, Prof. Dr. Prasart Suebka, Rector of the Suranaree University of Technology, opened the congress with the title: Green Production against Global Warming. After the keynote lecture “World Buffalo Production: Challenges in meat, milk production and mitigation of methane emission” was presented by M. Wanapat (Thailand). The President of the International Buffalo Federation (IBF) and of the Asian Buffalo Association (ABA), and Chair of the Organizing Committee, Prof. Rangsun Parnpai welcomed all the people taking part to the congress (700 people from 44 countries) and introduced the lecture dedicated to Prof. Maneewan Kamompatana: by K.H. Lu (China) on “Sperm sexing in buffalo using flow cytometry”.

In the plenary session 1 (Buffalo for Food security and Economy) more lectures were presented: by Libertado C. Cruz (Philippines) on “Changing faces of Swamp Buffaloes in an industrializing Asia”, where Dr. Cruz showed as Swamp Buffaloes, as draft animals in rice field, in many Asian countries were gradually replaced by tractors and their number dramatically declined, as in Indonesia, Malaysia, Thailand, Philippines; but the strategy in Philippines and China was to create Buffalo Institutes, as the Guangxi Buffalo Research Institute in China and the Philippine Carabao Center in Philippines, where crossbreeding with River dairy purpose buffalo breeds was applied and backcrossing too for buffalo and milk development programs.

The lecture by Antonio Borghese (Italy) followed on “Buffalo Livestock and products in Europe”, where the same trend than in Asia was shown: countries with dramatic declining of buffalo population, because of mechanization replaced draught animals, and countries as Italy, where a dairy buffalo breed, the Mediterranean Italian, was selected, producing until 5000 kg/ milk per lactation of 270 days, used to support the rich market of luxurious products, as the “mozzarella di bufala campana”, with a registered and protected mark in the European Union.

Marco Zava (Argentina) spoke about the Development of Buffalo Industry in America, while Kitti Koobkaew (Thailand) showed the Thailand Buffalo strategy Plan for 2012-2016.

In the Plenary session 2 (Sustainable Buffalo production) four lectures were presented: Prospects of nutrition and feeding for sustainable buffalo production, by Talat N. Pasha

(Pakistan), brief introduction to the development of Chinese dairy buffalo industry, by Bing-Zhuang Yang (China), Buffalo under threat in Amazon Valley, Brazil, by William G. Vale (Brazil), Buffalo share in small farmer welfare under intensive agricultural system, by Ibrahim Soliman (Egypt).

In the Plenary session 3 (Biotechnological for Efficient Buffalo production) two lectures were presented: Biotechnological approaches for efficient buffalo production, by M.E. Babar (Pakistan), the buffalo genome and the application of genomics in animal management and improvement, by John Williams (Italy).

On days May 7 and May 8, different Symposia were held: Buffalo Reproduction, Genetics and Breeding, Nutrition and Feeding, Buffalo Health, Buffalo Physiology, Production and Management, Socio-Economic and Sustainable Production, Buffalo Meat and Meat Products, Buffalo milk and Milk Products.

On May 7, at 15:30, the IBF Business meeting took place. The IBF General Secretary, Prof. Antonio Borghese presented the economic balance of the Federation, that was approved, and the IBF activities during the period 2010-2012, as the publication of the reported books and of the Buffalo Newsletter no. 25, 26, 27, the 9<sup>th</sup> World Buffalo Congress in Buenos Aires (Argentina, April 25-28, 2010), the 5<sup>th</sup> Buffalo Symposium for Europe and America in Havana (Cuba, November 22-23, 2011), and last but not at least, the participation to different projects: in Hungary to create a new experimental dairy buffalo farm, in Pakistan to support the humanitarian project “Buffaloes in Punjab”, in Bangladesh with an agreement with Lal Ter Seed Limited Company. Finally the IBF President Rangsun Parnpai invited the IBF delegates to present their candidature to the new President for the period 2013-2016, who will organize the 11<sup>th</sup> World Buffalo Congress in 2016.

China, Turkey and Colombia presented their candidature. The IBF delegates voted, each one for each country, and Colombia was elected with Claudia Roldan as President. Turkey was elected for organize the Asian Buffalo Congress on 2015 with Prof. M. Ihsan Soysal as President of ABA.

From May 9 to 13 the Post-Congress tour was held visiting different farms: the Thai Buffalo Conservation and Development Center, a Murrah farm, the Milking Buffalo farm of the Department of Livestock Development, and the World Buffalo show and competition.





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Sectorial Operational Programme “Increase of Economic Competitiveness”  
**“Investing for your future”**

PRIORITY AXIS 2 - Research, Technological Development and Innovation for Competitiveness  
Operation 2.2.1: - Development of the existing R&D infrastructure and the creation of new  
infrastructures (laboratories, research centres)

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INSTITUTE of UAV

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## Research Center in Technical and Natural Sciences CESTN

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The main Objective of the project is **development of the existing R&D infrastructure of a new Research Center in Technical and Natural Sciences at “Aurel Vlaicu” University Arad for approaching more priority domains (Innovative Materials, Products and Processes, Health, Environment, Agriculture, Food Safety and Security).**

The specific objectives are focused on development of R&D infrastructure, modernization of the existing laboratories, by the creation of new infrastructures, acquisition of new instruments and equipments, and refurbishment of research premises.

The main equipments envisaged are:

- Scanning Electron Microscope with FIB and EDX
- Transmission Electron Microscope with STEM
- Ultra-cryo-microtome
- Upgrading Atomic Force Microscope with new controller
- Upgrading confocal RAMAN with 2 more lasers
- Upgrading QTOF with ionic mobility system (new in Europe)
- DSC
- UHPLC with DAD, RID, fluorescence and QQQ detectors
- GCGCMS with TD





## International Symposium “Research and Education in an Innovation Era”, 5<sup>th</sup> Edition

We are pleased to invite you to 5<sup>th</sup> Edition of International Symposium “Research and Education in Innovation Era” which will take place on November 05-07, 2014 in Arad at “Aurel Vlaicu” University of Arad, Romania.

The Section 5 Chemistry and Application Fields will be held in collaboration with our partners: Romanian Chemistry Society and National Society of Environmental Science and Engineering.

More information and registration form at conference website:

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